VEXILAR FL SERIES SONAR/FISH FINDERS
OWNERS MANUAL

For Models:
FL-8SE | FL-12 | FL-18 | FL-20 | FL-22HD

Contents

Vexilar – Pioneers in Marine Electronics 2
About Flashers 3
Flasher Operation
- Basic Use 4
- About the Display 5
- Range Control FL-8se 6
- Range Control FL-18 7
- Range Control FL-12/20 8
- Range Control FL-22HD 9
- Setting the Gain 10
- Interference Rejection 11
- Low Power Mode 13
- Auto Zoom 14
- Bottom Lock 15
- Low Battery Indicator 15

Understanding Zoom
- FL-18 Zoom AutoZoom 16
- FL-20 Zoom AutoZoom 17
- FL-22 Zoom AutoZoom 18
- Night Mode 16

Boat Use
- Navigation 19
- Bottom Content 19
- Vegetation 20

Ice Fishing
- Basic Principals 21
- The Ice-Ducer™ System 22
- Seeing Your Lure 23

Ice Fishing Systems
- Genz Pack 24
- Pro Pack II 26
- Ultra Pack 28
- Battery Status Indicators 30
- Battery Charging 31

Boat Installation
- Unit Installation 32
- Power Connection 32

Transducer Installation
- Types and Methods 33
- Transom Mounting 34
- In-Hull Mounting 35
- AlumaDucer™ Install 36
- Trolling Motor Mounting 38
- Portable Options 39

About Transducers
- Cone of Sound 40
- Dead Zone 41
- Output Power 41

Parts and Accessories
- Vexilar Tri-Beam Ice-Ducer 42
- Optional Transducers 44
- Replacement Parts 45
- Accessories 46

Trouble Shooting
- Common Problems 48
- Maintenance 48
- Electrical Interference 49

Product Specifications
- All Models 50

Service and Support
- Contact 51

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VEXILAR — PIONEERS IN MARINE ELECTRONICS

Established in 1960, Vexilar, Inc. has been a leading innovator of marine electronics in the sport fishing industry for over 50 years. Some of their innovations include:

- The first straight-line paper graph for sportfishing (model 155)
- The first CRT (television) display (model 660)
- The first color display (model DE-12)
- The first fish alarm (model 120-SOS)
- The first Liquid Crystal Display (LCD) (model 480)
- The first self-leveling ice fishing transducer design (Ice-Ducer)
- The first split-screen zoom flasher (model FL-18)
- The first shoot-through-aluminum transducer design (AlumaDucer)
- The first 10' Range Flasher (FL-22HD)

With the recent introduction of the Edge family of liquid crystal sounders, they bring the first true dual frequency/dual transducer sonar systems to the sport fisherman. The FL series three-color flashers continue to lead the way in real-time high definition flasher performance. Quality products backed by world leading customer service are the bedrock of Vexilar, Inc.

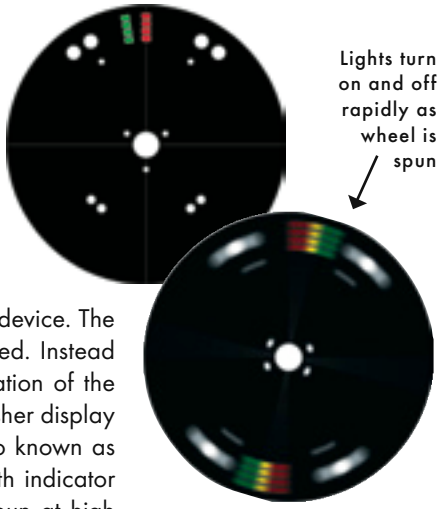
A Long History of Vexilar Products

ABOUT FLASHERS

How Sonar Works

SONAR stands for **SO**und **NA**vigation **R**anging. Sound travels through fresh water at a speed of approximately 4920 feet per second. A sonar device (depth finder/fish finder) measures the amount of time a burst of energy takes to travel to the bottom and return to the transducer. This time variation is then displayed on the readout of your sonar. When the depth gets deeper, the time of travel for the sound increases. The burst of energy, known as the transmit pulse, is generated by the sonar's transmit circuitry. This burst is delivered to the water via the transducer. The return signal , known as the echo, is received by the receiver circuit, also via the transducer. A central processing unit makes the calculations to determine the depth of bottom, as well as other targets.

The sonar signal sent from the transducer will reflect, or bounce off of any object that has a different density than water. This makes it possible to detect not only the lake bottom, but also vegetation and fish.



How Flashers Work

The sonar portion of a flasher works in the same manner as any other graph or LCD sonar device. The difference is in how the return signal is displayed. Instead of adding the data to a progressive representation of the bottom to construct a history, the data on the flasher display always represents the current point in time, also known as "real time". The display consists of a wheel with indicator lights mounted in one location. The wheel is spun at high speed and the lights turn on and off rapidly to show the sonar readings.

The Vexilar Advantage

Vexilar's sonar design offers an optimal balance between the power of the transmitted pulse and the sensitivity of the receiver circuit. Excessive power has been shown to cause premature transducer failure, distortion of the sonar signal, and possibly "spook" fish from the audible noise they hear. Vexilar provides a balanced performance level for a wide range of fishing scenarios.

FLASHER OPERATION

Basic Use

The Vexilar FL series color flashers are great tools for open water and ice fishing. Once you learn to understand the color display, you can apply this knowledge to greatly increase your awareness of what's under the water.

FL Series Flashers Can Be Used For:

- Determining the current depth at any boat speed.
- Locating fish-holding underwater structure.
- Determining the bottom hardness and transition lines.
- Penetrating thick vegetation to see what's below.
- Finding fish and the bait they feed on.
- Watching your bait and the fish around it.

Operation of each of the flasher models is very straight forward. You simply turn the unit on, select an appropriate depth range setting, and then an appropriate gain level setting. You should change the range and gain settings only when the conditions change.

RANGE

Range determines the maximum depth of water in which the flasher can see the bottom. For example, the shallowest range available on the FL-22HD is 0 to 10 feet. This means that if the water depth is between zero and 10 feet, the bottom will be displayed on the screen. If the water depth gets deeper than 10 feet, you'll want to select a deeper depth range in order to see the bottom.

DID YOU KNOW ?: It is usually best to select the shallowest depth range possible to see the bottom. This allows the water column below to be represented by the greatest amount of display screen area. This offers the highest resolution, makes things bigger and easier to see.

GAIN

Gain controls the amount of amplification applied to the return sonar signal. Think of gain as your volume control. You turn up the gain to see more of what's below. You turn down the gain to see less of what you don't want to see. The goal is to find a gain level that shows you as much real information as possible, without displaying stray signals of clutter and interference. Keep the gain setting as low as possible for best overall performance.

INTERFERENCE REJECTION

This feature rejects sonar interference generated by other nearby depth sounders. Interference Rejection, or IR, comes on automatically when you turn the flasher on, but you can adjust the setting if desired. Learn more on page 11.

About the Display

The FL series flasher display consists of three colors (marks) which appear at various positions on the screen. Understanding what the colors mean, and the position and size of the colored marks, is the key to being able to interpret the information correctly.

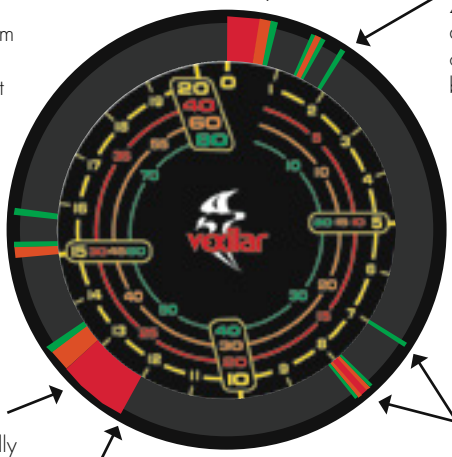
RED = Strong Strength Signals. Strong signals are generally produced by significant underwater objects, such as the bottom, heavy vegetation, and large fish. However, smaller objects, such as bait fish, can display as red if the object is directly under the transducer.

ORANGE = Medium Strength Signals. Medium signals are produced by smaller objects and softer bottom types. Also, medium strength signals can be produced by larger objects in the immediate area around, but not directly under, the transducer.

GREEN = Weak Strength Signals. Weak signals are produced by small objects, such as light vegetation, bait fish, and even air bubbles or aquatic micro marine life. Larger objects off to the sides of the transducer can also be displayed as green.

What is What ?

Here are the basics of what you will see on the display of an FL series flasher.



The Zero mark always shows, even if the transducer is unplugged. This mark indicates the starting point.

Marks just beyond the Zero mark can indicate algae, floating vegetation, or even "ice noise" caused by thick ice conditions.

You read the display in the clock-wise direction. The further around you go, the deeper the water.

Fish, bait fish, and even your lure, will show anywhere between the Zero mark and the Bottom mark. Here, a weak object shows about a foot above a much stronger object.

READ DEPTH HERE: The current depth is indicated by the leading edge of the bottom mark. The depth is 12 feet here.

Bottom is generally the most prominent mark on the display. Bottom usually starts with a wide band of red, with orange and green trailing.

Marks beyond the bottom mark can indicate either hard objects within a soft bottom or large objects well off to the side.

Setting the Range

FL-8SE

The FL-8SE has six depth ranges in two groups, Shallow and Deep. The Shallow group includes Zero to 20', 40', and 80'. The deep group includes Zero to 30', 60', and 120'. To interpret depth, you multiply the displayed reading by the range multiplier.

Deep Range Group
Look at the inner scale and the
right-hand multipliers in yellow

Shallow Range Group
Look at the outer scale and the
left-hand multipliers in white

Shallow Group

- S-1 = Zero to 20 feet. Read the outer white scale directly.
- S-2 = Zero to 40 feet. Read the outer white scale and double the reading.
- S-4 = Zero to 80 feet. Read the outer white scale and multiply by 4.

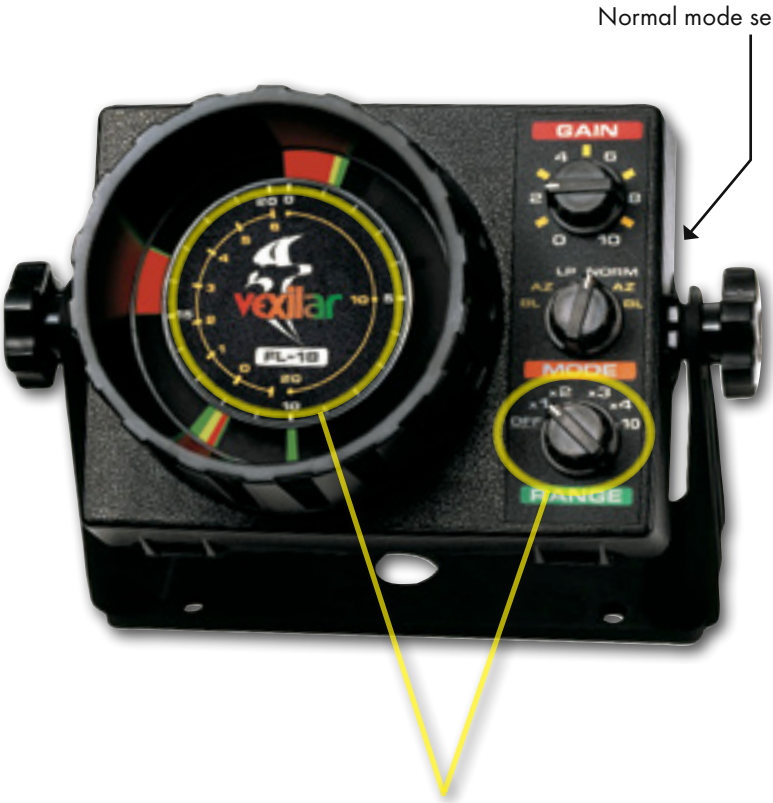
Deep Group

- D-1 = Zero to 30 feet. Read the inner yellow scale directly.
- D-2 = Zero to 60 feet. Read the inner yellow scale and double the reading.
- D-4 = Zero to 120 feet. Read the inner yellow scale and multiply by 4.

Setting the Range

FL-18

The FL-18 has 5 depth ranges. Zero to 20', 40', 60', 80', and 200'. To interpret depth, you multiply the displayed reading by the range multiplier.



In normal mode, read the outer white scale and multiply by the range setting. Here, the range is set to "x1". Bottom is at 15 feet, a fish is at 12 feet, and there is a weak signal at 10 feet.

If the range control was set to "x2", the bottom would be interpreted as 30 feet, the fish at 24 feet, and the green mark at 20 feet.

Reading the depth is the same in LP (Low Power) mode. Reading the depth in AZ (Auto Zoom) or BL (Bottom Lock) mode is discussed on page 15

Setting the Range

FL-12 and FL-20

Both the FL-12 and FL-20 have five depth ranges consisting of Zero to 20', 40', 60', 80', and 200'. To read depth, you match the color of the range selected with the depth scale of the same color.

Match the color in which the range knob is pointing to the same colored depth scale. Here, the range is set to 20 feet, which is yellow. To read depth, look at the yellow scale on the flasher display.

If you change to the 40 foot range, you'll look at the red depth scale, which is just inside the yellow 20 foot scale.

For the 200 foot range, look at the outer 20 foot scale, but add a zero to the reading, i.e. 10 feet would be read as 100 feet.

The 20' Low Power range reads the same as the standard 20 foot range, except that using this selection puts the flasher into Low Power Mode, which is discussed on page 13.

Setting the Range

FL-22HD

The FL-22HD has 6 depth ranges. Zero to 10', 20', 30', 40', 50', and 60'. To interpret depth, you multiply the displayed reading by the range multiplier.

In normal mode, read the yellow scale numbers and, if set beyond the 10' range, multiply by the range setting selected. In the figure above, if the range is set to "x2". The depth would then be 16 feet (8' x 2), and there is a fish is at 8 feet (4' x 2).

If the range control was set to "x3", the bottom would be interpreted as 24 feet (8' x 3) and the fish would be at 12 feet (4' x 3).

Reading the depth is the same in LP (Low Power) mode. Reading the depth in AZ (Auto Zoom) or BL (Bottom Lock) mode is discussed on page 15.

Setting the Gain

Gain functions are the same on all models. However, the FL-8se and FL-18 have a different scale than the FL-12, FL-20 and FL-22HD.

Gain Scale

- The FL-8se and FL-18 use a zero to ten scale.
- The FL-12, FL-20 and FL-22HD use a Minimum to Maximum scale.

FL-8se / FL-18
Gain Control

FL-12, FL-20 & FL-22HD
Gain Control

Gain controls the amount of amplification applied to the return sonar signal. Think of gain as your volume control. You turn up the gain to see more of what's below. You turn down the gain to see less of what you don't want to see. The goal is to find a gain level that shows you as much real information as possible, without displaying stray signals of clutter and interference.

Start at a low gain setting, near minimum. Turn up the gain, if necessary, until you see what you want to see. Generally, gain levels between minimum and one third are adequate for most situations. Higher gain levels should only be required to read in deeper water or to see small objects.

DID YOU KNOW ? Gain can act as a variable cone angle. As you increase the gain level, you can see things further away from the transducer. This can be helpful in uncluttered conditions. If you don't see anything on the screen (other than bottom), turn up the gain temporarily and see if anything shows up. If it does, it could be a fish some distance away from your transducer. Unfortunately, this won't work in cluttered water, such as weedy conditions, because the objects in the center of the cone will get amplified and overlap anything on the outside, making these objects impossible to distinguish.

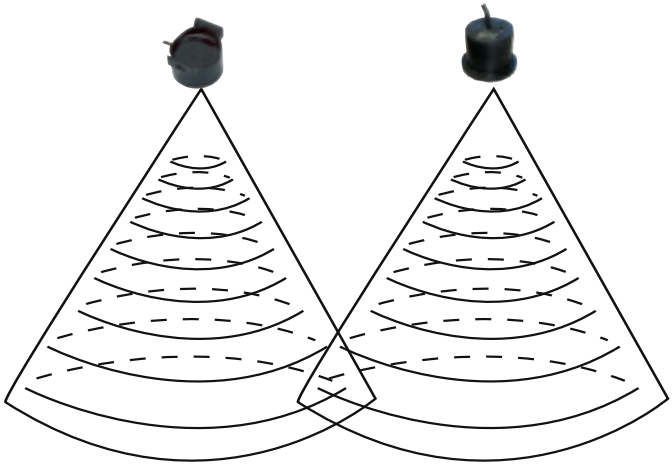
Interference Rejection

The purpose of interference rejection is to reduce cross-talk interference from other nearby depth sounders. This can be very helpful if you have another sounder mounted on your boat running at the same frequency as your flasher. It is also helpful when other fishermen are running sounders operating at the same frequency as your flasher nearby.

Cross-talk interference occurs when the signals sent from one depth sounder are received by another. If the two sounder's frequencies are the same, each unit is unable to differentiate between it's own signals and others. What you see as interference is actually the reading of the other sounder displayed on your screen. The signals can circle around the display or remain stable. Beware of the stationary interference signals. They can lead you to believe the depth is different than it is or that there's a fish hanging below you which really isn't there.

Usually, when you see interference on one sounder, the other sounder will show it too. Therefore, when you use your Interference Rejection to reduce or eliminate the interference on your display, the other sounder will see a similar reduction. This means you can use your Vexilar flasher next to another sounder which does not have the I.R. feature and both sounders can run more clearly.

If two Vexilar units are operating together, you will get the best results by leaving the IR control set at one level on one unit, while adjusting out the interference displayed on both units using the second unit's IR feature.

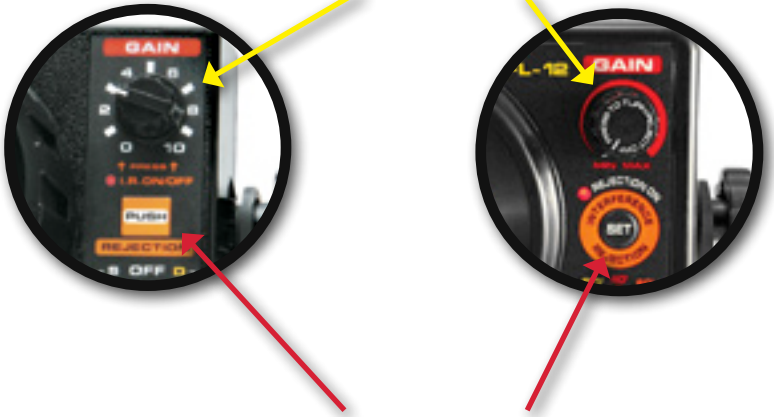


Interference occurs when the cone angles of two different sounders operating at the same frequency intersect. It can also occur if the sonar signal from one sounder bounces off an underwater object and is received by another sounder.

To reduce interference from other units, use a narrow beam transducer (see page #42)

FL-8SE and FL-12

Interference Rejection comes on automatically when you power up the flasher. You can turn it off by pressing on the gain control.



If interference from another sounder is present on the display, press this button repeatedly until it goes away or is reduced as much as possible.

FL-18, FL-20 and FL-22HD

Interference Rejection comes on automatically when you power up the flasher. If interference from another sounder is present on the display, press the gain control repeatedly until it goes away or is reduced as much as possible.

ADDITIONAL FEATURES

Low Power Mode (Not Available on FL-8SE)

Low Power Mode, or LP Mode, reduces the output power of your flasher. It is useful for situations where the gain cannot be turned down enough in Normal Mode. Use the Low Power Mode only when you need to. Usually, you'll use it in only very shallow or very weedy conditions.

FL-18

Activate the Low Power Mode (LP) by switching the Mode control to the left. The range can be set at any position. If you switch to the left of LP, you can activate the AZ or BL Modes in Low Power Mode.

FL-12 and FL-20

Activate the Low Power Mode by switching the range control from OFF to the left. The range will be set to 20 feet. You can use any of the Mode settings in Low Power Mode.

FL-22HD

Activate the Low Power Mode by switching the mode control from to the left. The first low power mode provides a normal view. The AZ 6' Low mode places the unit in the split-screen AutoZoom mode at low output power. (see page 13)

DID YOU KNOW ? Low Power Mode will not affect how much battery power is required to run the flasher. Switching to Low Power Mode will not significantly increase your running time on a battery.

DID YOU KNOW ? You can have a Low Power Mode feature on an FL-8se too by purchasing a Vexilar S-Cable. Learn more about it on page 45.

Auto Zoom (FL-18, FL-20, & FL-22HD Only)

Auto Zoom (AZ) puts the flasher into a split-screen view, with the complete water column on the right and a magnified view from the bottom on the left. When you switch to Auto Zoom Mode, the flasher automatically selects the magnified bottom view for you. However, you do need to have the flasher set to a depth range in which the bottom is in view.

FL-18

Activate Auto Zoom by switching the Mode control to the AZ selection on the right or the left. The right selection operates Auto Zoom at the normal power level. The left selection operates Auto Zoom in Low Power Mode. See 12.

FL-20

Activate the Auto Zoom by switching the Mode control to either the AZ 6′ or AZ 12′ setting to the right, or the AZ 6′ or AZ 12′ setting to the left. The right (Yellow) settings operate with the display at full brightness.

FL-22HD Auto Zoom

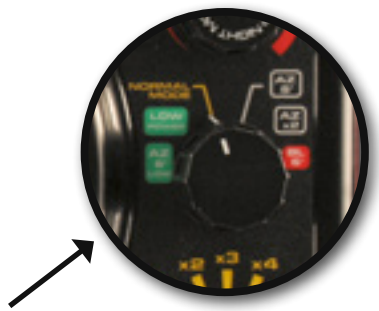
Activate the Auto Zoom by switching the Mode control to the right for either the normal powered AZ 6′ or AZ x2 (12′) setting. Turn the mode knob to the left for Low Power AZ 6′. Please note that the Auto Zoom feature will not function when the range control is set to the 10 foot setting.

Bottom Lock (FL-18 & FL-22HD Only)

Bottom Lock (BL) works the same as Auto Zoom, except the flasher continuously updates the position of the bottom in the magnified view. This can be helpful in a boat that is moving over varying depths or is riding in heavy waves.

Bottom Lock will keep the bottom reading lined up correctly with the zero mark on the Zoom scale. This allows you to see objects which are very close to the bottom, even though the depth may be changing rapidly. The range control must be set to a position where the bottom is displayed in order for Bottom Lock to function.

FL-18 Bottom Lock (BL)
Activate Bottom Lock by switching the Mode control to the BL selection on the right or the left. The right selection operates Bottom Lock at the normal power level. The left selection operates Bottom Lock in Low Power Mode.



FL-22HD Bottom Lock (BL)
Activate Bottom Lock by switching the Mode control to the right BL 6' selection. This selection operates the 6-foot zoom Bottom Lock at the normal power level. Use Bottom Lock in your boat only.

IMPORTANT - Bottom Lock works best for boats in motion. When still fishing, such as vertical jigging or ice fishing, the Bottom Lock feature can incorrectly identify a large object slowly moving into your view as a shallower depth change. The result is that the flasher adjusts to the new level and the object is displayed as the bottom.

Bottom Lock is not available on the FL-20

FL-20 & FL-22HD Low Battery Indicator

When battery power runs low, the red "Low Battery" indicator light will turn on. You can continue to use the flasher, but be aware your time is rapidly decreasing. When the indicator light begins to flash, failure due to low voltage is imminent.

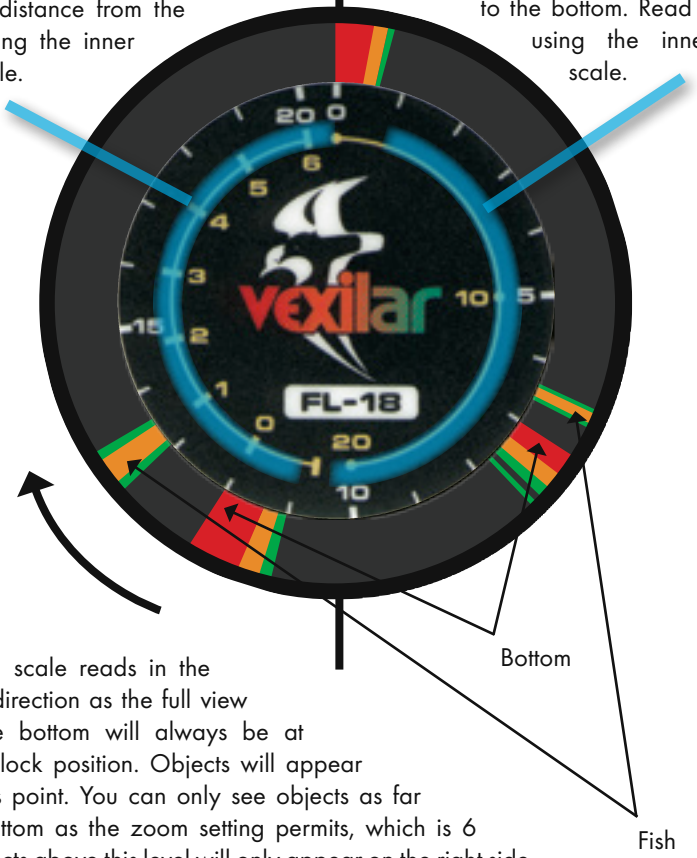
Understanding the Zoom Modes

When Auto Zoom (AZ) or Bottom Lock (BL) is active, the display is divided into two halves. When reading depths always use the inner scale on the right side. When the range is set to 20, read this scale "as is". When the range is set to 40, double the reading. If set to 60, triple the reading.

FL-18 - Auto Zoom

THE LEFT HALF represents the zoom view. From the bottom up to six feet. Read the distance from the bottom using the inner yellow scale.

THE RIGHT HALF represents the entire water column, from the water surface to the bottom. Read the depth using the inner yellow scale.

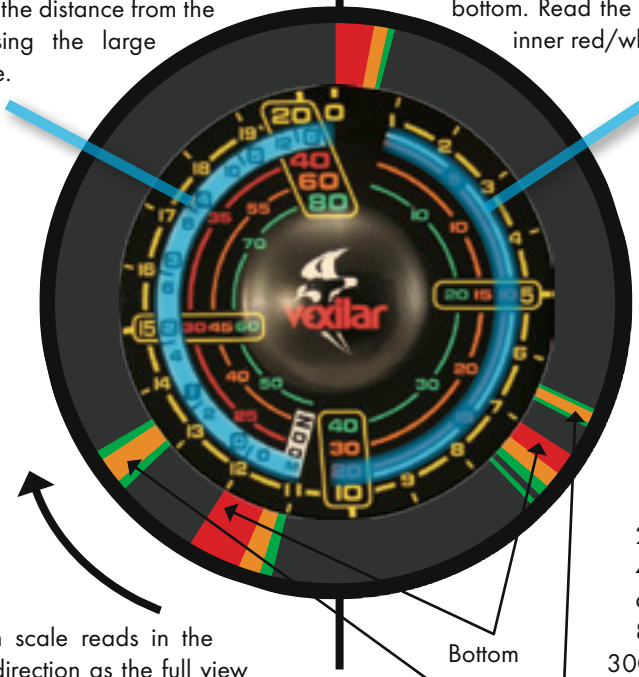


The Zoom scale reads in the opposite direction as the full view scale. The bottom will always be at the 7 O'clock position. Objects will appear above this point. You can only see objects as far off the bottom as the zoom setting permits, which is 6 feet. Objects above this level will only appear on the right side, which shows the entire water column.

FL-20 - Auto Zoom

THE LEFT HALF represents the zoom view. From the bottom up to six (or 12) feet. Read the distance from the bottom using the large white scale.

THE RIGHT HALF represents the entire water column, from the transducer to the bottom. Read the depth using the inner red/white scale.



You interpret the depth by multipling the indicated value on the red/white scale by the multiplying factor here.

20' Range = 1x
40' Range = 2x
60' Range = 3x
80' Range = 4x
300' Range = 15x

The Zoom scale reads in the opposite direction as the full view scale. The bottom will always be at the 7 O'clock position. Objects will appear above this point. You can only see objects as far off the bottom as the zoom setting permits, either 6 feet or 12 feet. Objects above this level will only appear on the right side which show the entire water column.

Bottom

Fish

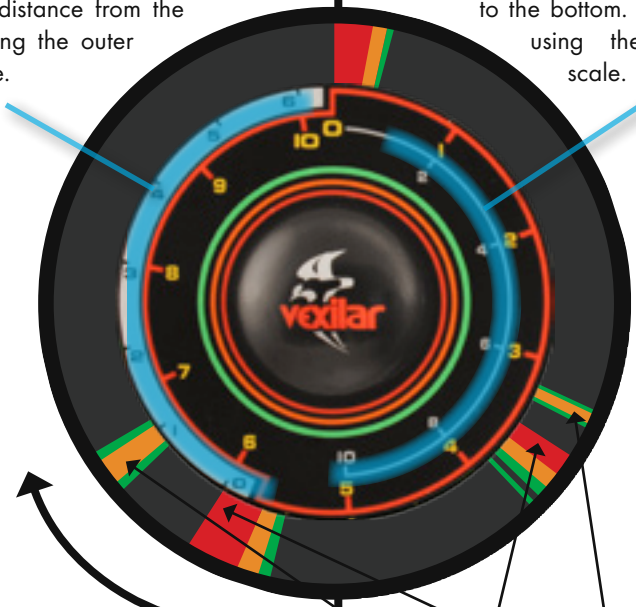
IMPORTANT Zoom should be activated only when the transducer is submerged. If the zoom is activated before the transducer is placed in the water, such as when moving from ice fishing hole to hole while the zoom is operating, the bottom may not line up with the zero mark on the zoom scale correctly. If this happens, simply switch the flasher to Normal Mode, or Full View Mode, and then back to Zoom to reset the feature.

IMPORTANT If the depth of water changes while a zoom mode is selected, the bottom position on the zoom scale will change accordingly. If the bottom signal moves off of the display, reset the zoom by switching back to the Normal Mode momentarily. For this reason, the Zoom Mode is not recommended for use on boats where changes in depth are commonly occurring.

FL-22HD - Auto Zoom

THE LEFT HALF represents the zoom view. From the bottom up to six feet. Read the distance from the bottom using the outer white scale.

THE RIGHT HALF represents the entire water column, from the water surface to the bottom. Read the depth using the inner white scale.



The zoom scale reads in the opposite direction as the full view scale. The bottom will always be at the 7 o'clock position. Objects will appear above this point. You can only see objects as far off the bottom as the zoom setting permits, which is 6 feet. Objects above this level will only appear on the right side, which shows the entire water column.

Bottom

Fish

Night Mode

(FL-20 & FL-22HD Only)

Night Mode reduces the flasher's display brightness to make night time viewing more comfortable to your eyes. The display intensity is reduced by about 50%.

FL-20 To activate Night Mode, switch the Mode control to either the Full View, AZ6, or AZ12 position to the left.

FL-22HD To activate Night Mode or return the display to full brightness, press and hold on the top Gain control.

BOAT USE

Navigation

The Vexilar FL series of flashers are great tools for navigation while boating. The instantaneous readings offer the ability to identify depth changes quickly. Here are some tips to help you navigate safely.

CAUTION:

- Be sure you know which range you have selected. If you think you have the flasher set to a deeper range than what it actually is, you may run aground unexpectedly.
- Be aware that although the depth displayed may be deep enough to navigate in presently, shallow water may be dead ahead. Allow yourself plenty of time to slow down if shallow water is encountered.
- If no bottom is displayed, assume the depth is extremely shallow. It may, in fact, be deeper than the selected range, but never assume so without checking first.
- Use common sense. Do not trust the flasher as the ultimate source of information. Use good judgement as well.

Bottom Content

The Vexilar FL series flashers are also great tools for determining bottom content changes. The colors allow you to easily see when the bottom changes from one type to another.

Hard or Soft Bottom

- Hard bottoms will generally appear as a narrow band with color content of mostly red and orange.
- Soft bottoms will appear a wide band with more orange and green than red.

Hard Bottom

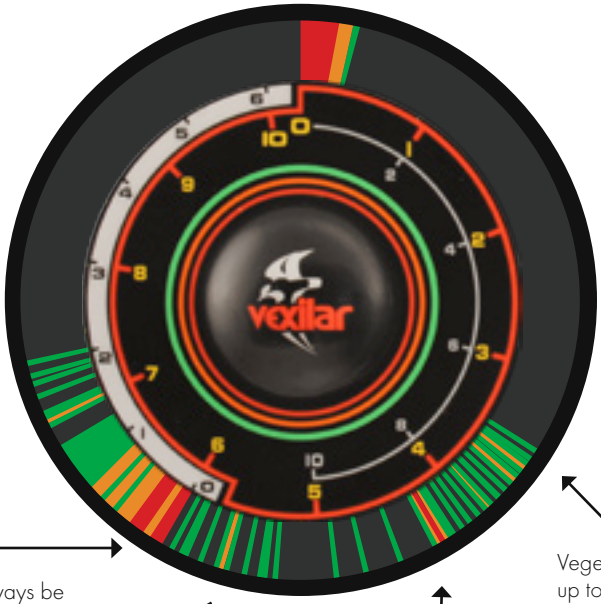
Soft Bottom

Vegetation

The Vexilar FL series flashers are exceptional when it comes to reading inside vegetation. With proper transducer choice, the colors will allow you to differentiate vegetation from the bottom. Experience will even allow you to identify fish inside heavy vegetation.

Tips for Reading in Vegetation

- Narrow transducer cone angles will perform better than wide cone angles.
- Keep the gain setting very low. Too much gain will make readings difficult.
- Move a boat slowly so you can identify openings that may hold fish.



Bottom

Bottom will always be the largest group of red and orange signals.

Orange within the green generally indicates thicker sections of the vegetation. Although it warrants watching, as it could also indicate a fish on the outer edge of your cone.

Possible Fish

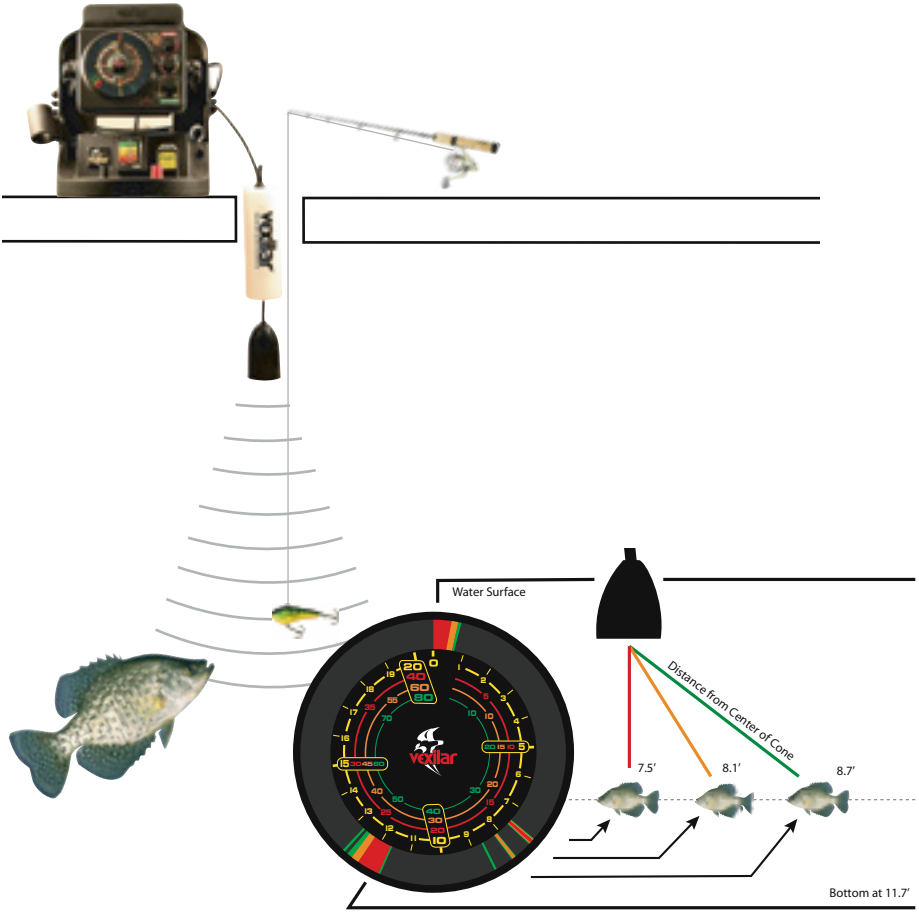
Although this red target could indicate a clump of vegetation, it could also indicate a fish just under the canopy

Vegetation has grown up to this point. In deeper water (beyond several feet) this is known as the canopy. It's where the tops of the vegetation spread out

ICE FISHING

Basic Principles

The FL series color flashers offer distinct advantages over traditional depth sounders for the sport of ice fishing. This unique style of fishing offers a stable platform to fish from. Because everything is so stable, the only movements below are that of fish. Additionally, the conditions allow you to drop your bait directly down into the center of the transducer's cone of sound. This allows you to be able to see your bait and the fish on the display at the same time. You can tease the fish and see his reaction.



WARNING - Before venturing onto the ice to go fishing, be sure you know if the conditions are safe. Check with the local bait shops AND cautiously check the ice thickness yourself. You should have at least 6" of clear ice to safely support yourself and your ice fishing equipment.

Ice Fishing Transducer

Vexilar ice fishing systems include a special type of transducer patented in 1997 called the Ice-Ducer®. This transducer style is designed specifically for the ice fishing application. The Ice-Ducer® works off the "plumb-bob" theory. When suspended by the cable, the transducer cone is perfectly aligned to point straight down.

Ice-Ducer® Components

Stopper - The stopper sets the depth of the transducer. It's adjustable so you can set the depth according to your preference or conditions. Generally, you want to set it so the bottom of the transducer is even with the bottom of the ice.

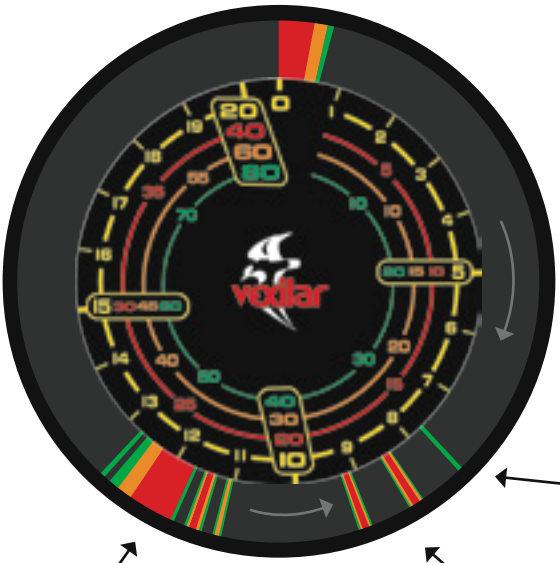
Float - The float suspends the transducer in the ice hole. You can also use the eye-bolt included with the Vexilar ice fishing systems to suspend the transducer. This can often be the best choice for early ice conditions.

Cable - Ice-Ducer® cable is specifically designed to stay flexible in cold temperatures. This flexible cable will be more prone to be cut by your line or damaged if not stored correctly. It's a key part of the Ice-Ducer® system.

Transducer - The transducer is designed to allow a perfectly downward alignment while suspended and be able to endure the severe conditions encountered in the ice fishing environment. Four models with different cone angles are available to match your fishing needs. See page 44 for more information.

Seeing Your Lure

The key to ice fishing success when using a Vexilar ice fishing system is the ability to see your fishing lure and it's relationship to the bottom, structure, and fish. Ice fishing with a Vexilar allows you to present your lure to the fish. You see the fish on the display and you raise your lure so it is right above the fish on the display. If the fish is hungry, it will bite. If not, it will react in some way to your presentation, such as with disinterest or fear. You can see this reaction on the flasher display and adjust your tactics accordingly.



Typical Ice Fishing View

This illustrates a typical panfish fishing view. As you lower your lure, you see it going down on the display while the curious fish rise to see what it is. When the two signal lines meet, it is time to be ready for a strike.

Lure

With the gain control set properly, your lure will appear as a weak signal. You want it to appear small next to the fish, which are much larger.

Bottom

Fish

Several fish are holding near the bottom. The thin green line right on the bottom may be a fish just up off the bottom, as the others are, but some distance to the side.

Fish

A pair of fish are rising to your lure as it is being dropped down. This is a good sign, as competition can make fish more aggressive.

DID YOU KNOW ? Setting the gain level correctly is important to be able to understand what's going on below you. Use the lure's appearance as your reference for adjusting the gain control. Set it so your lure appears as a green signal. Because the fish are much larger than your bait, they will appear as stronger signals. Be prepared to readjust the gain control up and down often, as small position changes and the condition of any bait attached will effect the strength of your lure's signal.

ICE FISHING SYSTEMS

The Genz Pack

The Genz Pack offers a great value in an affordable ice fishing pack. It includes all of the basic components needed to ice fish with a Vexilar FL series flasher immediately. A key factor of the Genz Pack is that it fits on top of a five gallon bucket (not included).

Carry Case
The Genz "Blue Box" is a two-piece system made from a high density polyethylene.

Battery and Charger
12 Volt - 7 Amp Battery with Charger

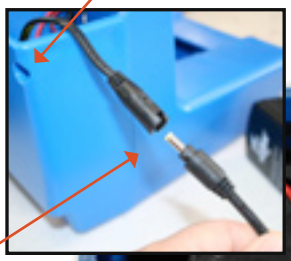
FL-8SE Shown

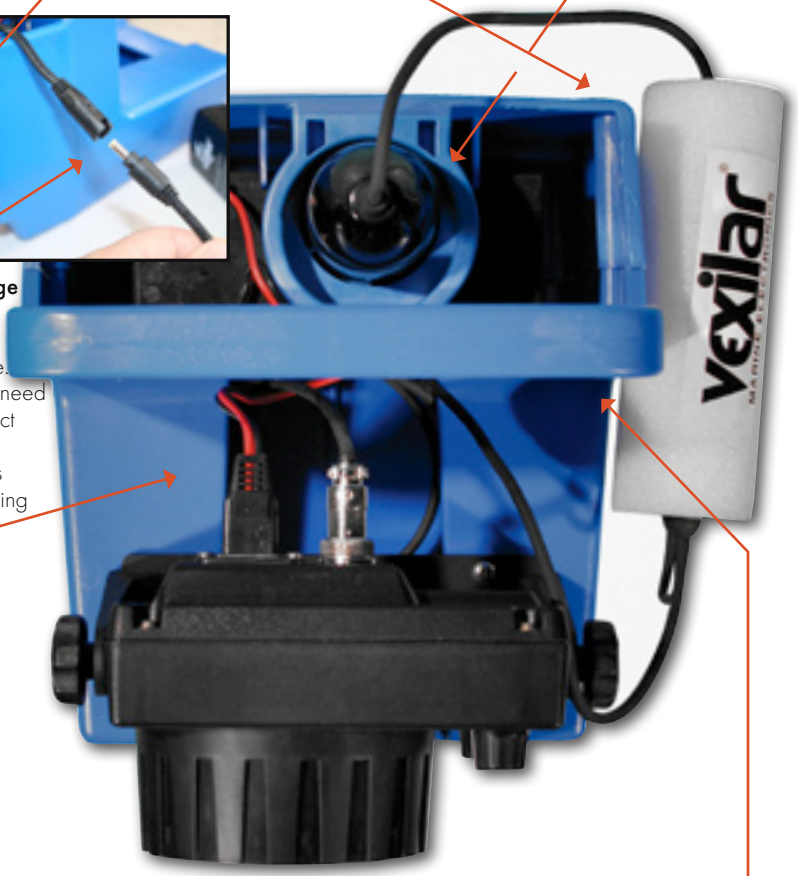
Mounting Base
The large mounting base offers ample room for the Vexilar flasher, or other brands of sonar and GPS.

Carry Case Base
The base is designed to fit perfectly on top of a five-gallon bucket.

Battery Compartment
To remove the battery, remove the four rear section screws.

Transducer Holder
Store the transducer in the special holder above the battery. The holder is designed to accept all styles of Ice-Ducers.





Easy Charge Jack
Charge the battery here. You do not need to disconnect the battery connections while charging

Cable Storage
Stuff extra cable into the storage compartment under the flasher unit.

Eye-Bolt
Insert the transducer support eye-bolt here. Be sure to remove the float from the transducer cable when using the eye-bolt, which is commonly used on lakes with thin ice conditions.

Accessories
Use the pre-drilled holes for Vexilar add-on accessories, such as the FlexLight, Battery Status Indicator and Tri-Beam Transducer Switch.
See page 42.

The Pro Pack II

The Pro Pack II offers everything needed to begin ice fishing with a Vexilar color flasher, plus some extra add-ons to make the system more complete.

Battery Status Indicator
Shows the current level of charge in the battery. See page 30 for instructions.

Battery and Charger
12 Volt / 9 Amp battery with 1 amp digital automatic charger.

FL-12
Shown

Tackle Box
The Vexilar tackle box fits into a convenient location here.

Eye-Bolt Storage
The transducer support eye-bolt fits into a dedicated storage location here

Rod Holder
Adjustable angle and fits into either side of the case

Carrying Case Base
The round base is designed to fit inside a five-gallon bucket.

Battery Compartment
To remove the battery, remove the flasher from the carrying case, then the transducer holder by removing the two mounting screws.

Transducer Holder
Store the transducer in the special holder above the battery. The holder is designed to accept all styles of Ice-Ducers.

Accessories
Use the pre-drilled holes for Vexilar add-on accessories, such as the FlexLight, or Tri-Beam Transducer. See pages 45 - 47.

Eye-Bolt
Insert the transducer support eye-bolt here, the pack's front or far side. Be sure to remove the float from the transducer cable when using the eye-bolt.

Cable Storage and Cleats
Use the cable handle as your cable storage and the tie-down cleats on either side to keep it in place and out of your way.

Easy Charge Jack
Charge the battery here. There is no need to disconnect the battery connections while charging. **Be sure to disconnect from battery when putting the system away for more than a week, as the D-130 will drain your battery**.

The Ultra Pack

The Ultra Pack is rugged and packed with features. The Ultra Pack includes a D-130 Battery Status Indicator, tackle box, remote accessory posts, a strong float holding handle, four rod holder mounting locations, an enclosed battery compartment and master power switch.

Float Holder
Store the Ice-Ducer float here.

Rod Holder
Adjustable angle and fits into four mounting locations; either side, front and back.

Eye-Bolt Storage
The transducer support eye-bolt fits into a dedicated storage location here

Enclosed Battery Compartment
The battery is enclosed within the base here.

Battery and Charger
12 Volt / 9 Amp battery with 1 amp digital automatic charger.

Battery Status Indicator
Shows the current percentage of charge in the battery. See page 30 for instructions.

External Power Posts
Optionally use these posts to connect a battery charger (1 Amp Max) and to power external 12 volt accessories (2 Amp Max).

Master Power Switch
Use this switch to turn all power on and off, including the power to the external posts. **Remember that this switch must be ON to charge the battery.**

Tackle Box
The Vexilar tackle box fits into an easy access holder on the back of your Ultra Pack.

Accessories
Use the pre-drilled holes for Vexilar add-on accessories, such as the FlexLight or Tri-Beam Transducer switch.
See page 44 - 47

Eye-Bolt
Insert the transducer support eye-bolt here, on the opposite side, or in the front. Be sure to remove the float from the transducer cable when using the eye-bolt.

Non-Slip Bottom
The non-slip bottom fits into a standard five-gallon bucket for convenient storage.

Cable Storage and Cleats
Use the area behind the tackle box as your cable storage. Use the tie-down cleats on either side to keep it in place and out of your way.

Transducer Holder
Store the transducer in the special holder behind the battery compartment. The holder is designed to accept all styles of Ice-Ducers.

Easy Charge Jack
Lets you charge the battery by plugging in your charger here.

Battery Status Indicators

D-130 Digital Status Indicator

A unique battery fuel guage that recognizes both the discharge and charge cycle of your battery. It will sense the current charging condition of the battery, display the percentage of remaining capacity and display a charge trend arrow... (▼ or ▲).

D-130

The D-130 will continue to measure capacity and trend as long as it is connected to the battery. When an additional "load" is applied to the battery, the capacity will decrease according to the load applied.

When the load is removed the digital readout will remain at the last shown level and the trend arrow will switch to (▲). This rebound indicates the battery is starting to recover, but the digital readout of the capacity will hold at its lowest level unless you reset it by disconnecting and reconnecting the D-130 to the battery.

T-130 LED Status Indicator

GREEN LED
100% to 75% Zone

YELLOW LED
75% to 50% Zone

ORANGE LED
50% to 25% Zone

RED LED
25% to 0% Zone

ON LED
Power is connected. If no other LEDs are illuminated, the voltage is very low.

T-130

IMPORTANT: The T-130 will not show an accurate level when the charger is connected. Remember to use the charger's LED as your "Charge Complete" indicator. Also, the percent of charge shown will vary with the temperature and battery load. Readings will be most accurate when the flasher is running and the temperature is above 50° F.

*If you continue to use the D-130 without disconnecting it, the D-130 will show the last capacity until the battery falls below this point, then continue to decline with use.

When a charger is attached to the system, the digital readout of capacity will remain the same, up to an hour, with an (▲) arrow indicating that it is receiving a charge before the digital readout will start to advance. Note, with some batteries, the very top rating for a charged battery (12.7 volts) or 100% rating will not stay at 100% even though it might be fully charged. This is normal.

Each battery charges differently and may be fully charged but reads 95%, instead of 100%. This is a normal occurrence with batteries since not all batteries will hold the same top-end percentage when fully charged and is not an indication of a poor or defective battery.

When you reconnect the D-130 to the battery, the display will show the current status of the battery at that moment. Note that the D-130 needs to be connected to the battery before a charger is connected to give an accurate reading.

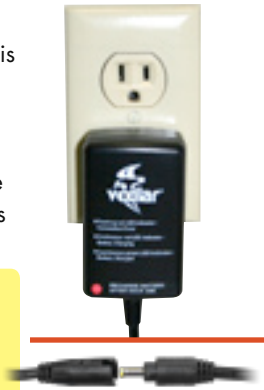
IMPORTANT: Be sure the indicators are not on during long storage periods, as excessive battery drain can result. For Pro Pack systems, disconnect the indicator from the battery before storage. For Ultra Pack systems, be sure the master power switch is off.

Battery Charging — CHARGE AFTER EACH USE

1 Amp Digital Automatic Charger (model V-410 / 1 Amp)

1 Allow the battery to warm up before charging. This makes it easier for the charger to charge the battery and the battery is more accepting of a charge.
2 Plug the charger into a wall outlet, verify that it is operating by noting the illuminated GREEN light.
3. Connect the charger to the Easy Charge Jack attached to the unit. The charger's light will switch to RED, indicating that it is connected correctly and the battery is charging.

If your charger is NOT equipped with an Easy Charge Jack, connect the terminals to the battery with the RED (+) connected to positive and BLACK connected to negative (–). The charger's light will switch to RED, indicating that it is connected correctly and the battery is charging.
FLASHING RED INDICATES A REVERSE CONNECTION.



Easy Charge Jack

4. Keep the charger plugged in and connected until the RED light has changed to GREEN. This indicates the battery is at full charge.
5. Unplug the charger from the wall outlet and disconnect from the battery.

Charging times will vary depending on how much the battery has been drained. If the battery has been completely drained (approx. 24 to 30 hrs. of use on a 9 amp battery) the battery will require about 9 hours of charging. Once the battery is fully charged and the charger's light returns to GREEN, the charger is then operating in a "Maintenance Mode". At this stage, the charger can remain connected to the battery indefinitely and the battery will be maintained at full charge.

BATTERY DO'S

- Allow the battery to FULLY recharge after each use. Recharge after every use.
- Give cold batteries extra time to charge. Charge at room temperature if you can.
- Keep flames, sparks, and metal objects away from batteries and terminals.
- Charge periodically during battery storage.
- Disconnect the battery when not in use.

BATTERY DON'TS

- OVER DISCHARGE the battery, You should never drain a battery to the point where your Vexilar stops.
- DISCONNECT exposed battery clips before switching the charger OFF.
- Damage the battery or terminals by dropping.
- Use another device to determine if your battery is fully charged. Go by the charger's light alone.

DID YOU KNOW? There is no need to disconnect the flasher when charging, although it should be switched off. Also, make sure the battery has a full charge and is disconnected or that all power is switched off before putting it away for storage. ***Remember to charge after each use.***

IMPORTANT: If you have an Ultra Pack system, be sure your Master Power switch is ON and the flasher is turned OFF for charging,

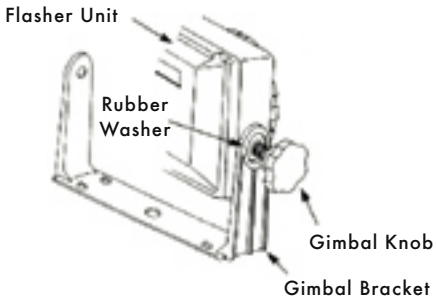
BOAT INSTALLATION

Mounting the Flasher Unit

Take a few minutes to plan your installation. The unit should be mounted in a location where it will be readily visible yet out of the way of traffic. The mounting surface should be fairly flat. Be sure to allow clearance for the cables at the rear of the unit while it tilts and swivels. The unit is weather-proof, not waterproof, so try not to mount it in a location where it will be exposed to the extreme forces of wave impact during severe conditions.

To install the flasher unit:

1. Obtain four appropriate fasteners for your mounting location.
2. Remove the flasher unit from the gimbal bracket by removing the two gimbal knobs on each side of the unit.
3. Position the bracket in your intended mounting location.
4. Mark the four holes and drill each using the appropriate drill size.
5. Attach the gimbal bracket using your four fasteners. Tighten securely.
6. Replace the flasher unit into the gimbal bracket and tighten the gimbal knobs snuggly.



Flasher Unit Assembly

Power Connection

Your flasher unit requires a 12 volt power source to operate. A connection can be made directly to a battery or a connection can be tapped into a boat's electrical system.

- If possible, power your flasher using the main starting battery, not a battery that powers an electric trolling motor.
- When routing the cable, be sure to stay away from, or provide cable protection around, areas with sharp metal edges.
- If the supplied power cord is too short, extend it using 18 gauge wire.
- *IMPORTANT*: Be sure to have circuit protection, such as a 1 amp fuse or circuit breaker, placed in the positive line near the power source to protect the wiring.

To connect the flasher to power:

1. Be sure the power cord is not connected to the flasher.
2. Route the power cable from the flasher location to the power source.
3. Connect the white or red wire to the positive power source terminal and the black wire to the negative terminal.
4. Connect the power plug to the flasher's power jack.

TRANSDUCER INSTALLATION

Transducer Types and Mounting Methods

There are several different transducer styles used for the various mounting options available to you. Choose the style which best meets the needs for your mounting application.

Transducer Types

- High-Speed Transom: This style is designed to be mounted externally on the transom of your boat. It has a special wedged shape to allow clear water flow when running at high boat speed.
- Puck Style: Puck transducers are meant for attachment to an electric trolling motor. They have a special curved shape and attachment slots just for this purpose. Pucks are also commonly used for in-hull mounting within fiberglass boats.
- AlumaDucer™: This style is specially designed for in-hull mounting in aluminum boats. The transducer overcomes the inherent signal loss when shooting through an aluminum hull. The Alumaducer™ is a Vexilar exclusive.

High-Speed

Puck Style

AlumaDucer

Mounting Methods

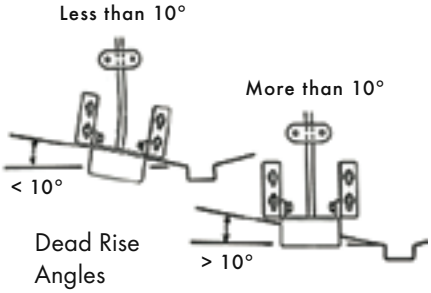
- Transom Mounted: the method by which the transducer is mounted external on the back of the boat. The transducer is attached at the bottom of the transom with a small portion of it extending below the hull line. (see page 34)
- In-Hull Mounting: the method by which the transducer is glued to the inside of the hull of the boat. The sonar signal shoots through the hull and into the water. The use of an AlumaDucer™ is required to achieve a full strength signal when mounting in aluminum hulls. (see page 35 - 36)
- Trolling Motor Mounting: the method by which the transducer is attached to the lower unit of the electric trolling motor. (see page 38)
- Portable Mounting: the solution when easy transducer removal from the boat is desired. Generally, a suction cup bracket is used to attach either a high-speed or puck style transducer to the rear of the boat. (see page 39)

DID YOU KNOW?: If you find that you have bought the wrong transducer for your intended mounting application, you can exchange it with Vexilar. You will only need to pay the retail cost difference, plus shipping, of the transducer style needed. Transducers must be in new condition. Please call for more information: 952-884-5291

Transom Transducer Mounting

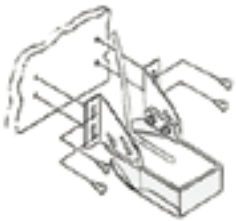
Before you begin the process of installing the transducer, check your hull to find a spot where you'll get a smooth water flow along the bottom of the boat. You want to avoid ribs, rivets, and gouges or scratches in the hull.

To get a true vertical depth reading, the transducer should be mounted parallel to the water line. However, a 10° tilt to either side is acceptable. If the hull is reasonably flat with a dead rise of 10° or less, mount the transducer along the hull bottom. If dead rise is greater than 10°, mount the transducer with level alignment.

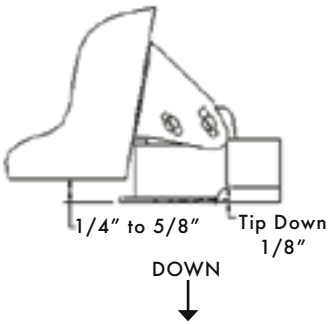


Dead Rise Angles

To Install the High-Speed Transducer



1. Assemble the stainless steel brackets to the transducer using the hardware furnished. Do not tighten until final adjustments are made.
2. Place assembly on transom at selected location with the front of the transducer extending 1/2" to 5/8" below the bottom of the boat and with the front part against the transom. The least amount that the transducer extends below the bottom is desired. If too low, spray and turbulence will occur resulting in lost bottom readings.
3. With transducer in place, mark the four slot locations of the transducer mounting brackets. Drill in center of slot outline using a 9/64" (3.5 mm) drill.
4. Fasten the transducer to the transom using the #10 x 3/4" screws, nuts and washer plates.
5. Before final tightening the 4 screws holding the brackets to the transducer, tip the rear edge down approximately 1/8" as shown.
6. Tighten all screws.



CAUTION. Do not use any thread locking compound on the screws. Most products such as Loctite® contain chemicals that attack and weaken plastics.

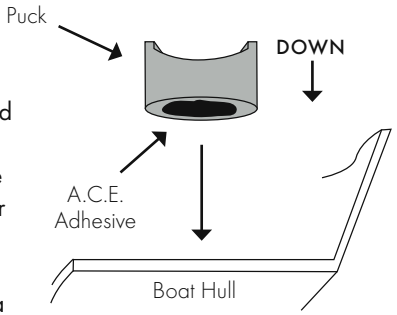
IMPORTANT. There should be no gap between the brackets and the transducer. A wide space between these parts will cause stress on the transducer mounting ears and result in breakage with time.

When running the cable to the sounder, avoid other wiring on the boat, particularly ignition and alternator cables. They can be a source of noise on the sounder display.

In-Hull Transducer Mounting

Surface preparation and location are the keys to having a good sonar transducer installation that will last for years, so please take a few extra minutes to test the location and prepare the surface area. Also, the hull temperature should be at least 60° F while performing the installation.

Select an area in your boat. Ideally, for high speed operation, you will need to place the transducer near the center of the transom area of the boat, which is often near the drain plug. You must attach the transducer to a solid hull area; this means you cannot have double hull aluminum or a foam layer in the fiberglass between the transducer and the water.



To Install the In-Hull Transducer

1. Prepare the surface area. It is critical you find a smooth, flat spot to place your transducer. Small ridges, bumps or even paint under the transducer will affect the quality of the sonar signal. Your surface preparation kit comes with a Scotch-Bright® pad to smooth any rough areas down to the base material for a secure installation. Use the pad to rough-up the face of your transducer a little too. This will also aid in the long-term quality of your installation.
2. Clean the area. Use the supplied cleaning patch of Isopropyl Alcohol to remove dust and dirt from the target mounting area. Be sure to also wipe clean the face of your transducer. Let dry for a few minutes.
3. Position the transducer. Place the transducer exactly where you want to install it. Apply the four supplied positioning pads around the transducer. The positioning pads are needed to prevent your transducer from drifting off the target area while the A.C.E. adhesive sets up.
4. Mix and apply the epoxy. Follow the mixing directions on the packet of A.C.E. Adhesive and apply the entire packet contents directly to the face of the transducer.
5. Install the transducer. Place the transducer into position. Press firmly and twist slightly back-and-forth to work-out any air bubbles that might have been trapped in the epoxy.
6. Installation complete. Allow the A.C.E. to dry.

CAUTION. Do not power-up your depth sounder for at least 12 hours. Doing so will effect epoxy curing.

AlumaDucer™ Transducer Installation

IMPORTANT PRE-INSTALLATION INSTRUCTIONS

The AlumaDucer mounted in-hull helps many boaters get better performance and protection from damage than ever before using externally mounted transducers. The key to good performance is to understand the dynamics of how water flows under your hull at different boat speeds. Fiberglass boats often have a flat spot or "pad" on the very rear of the boat. This flat area is ideal for transducers to get a good clear reading at high speeds. With aluminum hulls, this area may not be as obvious. In welded, flat bottom Jon boats it is often easy to find an area where smooth water without bubbles are flowing down the hull of the boat. Boats with rivets, scratches, and/or dents along their bottom side create more turbulence, so finding an area of smooth water without air pockets can be a challenge, but it is possible in most cases. We highly recommend you test your boat to find the optimal mounting location BEFORE installing the AlumaDucer. Here's how to do it:

Select an area within one foot of the center keel of the boat and directly in front of the bottom corner of the transom. This area is often near the drain plug. Your goal is to select an area that is between ridges or rivets preferably in the center or towards the driver's side of the boat. You need to select an area of the hull that does not have a dent or depression that might create a pocket of air while the boat is running at higher speeds. A simple straight edge ruler can be used on the bottom of your hull to ensure you have selected a non-warped area. Also, avoid areas of the hull where trailer bunks or rollers rest, as the aluminum in these areas tend to flex slightly while trailering the boat.

Mounting Location Testing

1. Head to your favorite testing waters and launch your boat.
2. Fill the rear bilge area of your boat with about an inch of water.
3. Remove the protective film from the transducer face and place the transducer in the water in the desired position.
4. Connect the AlumaDucer to your depth finder. You don't need to do any fancy routing of the cable for now.
5. Go for a boat ride. Make sure you get good strong readings at all boat speeds. If not, move the transducer around until you do.

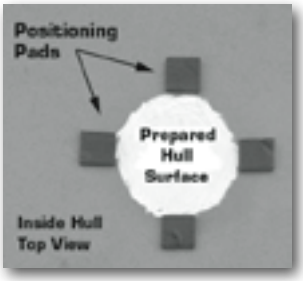
If you don't have a friend to help drive the boat while you're moving the transducer around, use a zip lock bag with beach sand in it, or something similar, to keep the transducer face firmly in place on the hull and under the thin layer of water you have in your boat. Remember to consider the average weight distribution within your boat. Try to compensate for your own weight during the test.

Once the "sweet spot" has been found, you simply drain your boat, dry the area thoroughly and install the AlumaDucer by following the instructions on the next page.

Installation Procedures

Installing the AlumaDucer

1. Using the supplied Scotch-Brite® pad, remove any paint, dirt or coatings on the aluminum. You MUST be down to the bare aluminum and the surface must be dry. Wipe off all loose dust and dirt.
2. Using the supplied alcohol swab, wipe clean any dust or dirt you created from the target area on the hull and the face of the transducer. Use additional cleanup measures if required. Dry the area with a clean paper towel or rag.
3. Set the transducer in the prepared area and place the four supplied foam positioning pads around the transducer as shown. This will keep the transducer from moving once the transducer has been positioned.



4. Using the pre-measured packet, mix both elements of the A.C.E. adhesive together, following the directions on the packet. Once thoroughly mixed, you have about 10 minutes to apply this special A.C.E. Adhesive. (Accoustically Conductive Epoxy)
5. Remove transducer from the target spot. Apply the mixture to the transducer NOT the boat. Be sure to use all the Epoxy in the packet.
6. Now, simply press the transducer back into the prepared area. Twist it slightly back and forth several times. This is done to make sure no air pockets remain under the transducer.

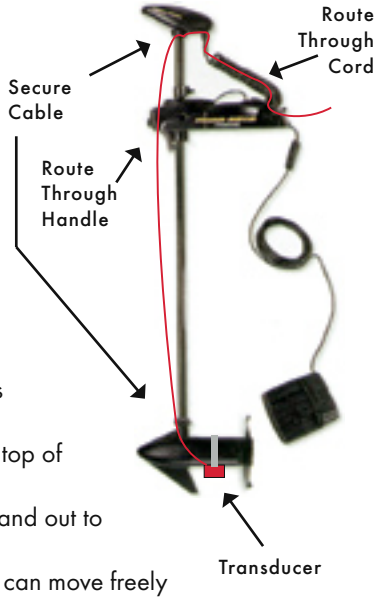
The special A.C.E. Adhesive will set in about 30 minutes. Try not to move the boat around during this period. The foam pads you placed around the transducer keep it from drifting from the spot you have selected while the adhesive cures overnight. Do not turn your sonar "on" for 12 hours to ensure a solid connection between the transducer and the aluminum hull.

IMPORTANT: The hull temperature should be at least 60° F for proper curing of the A.C.E. adhesive.

Electric Trolling Motor Mounting

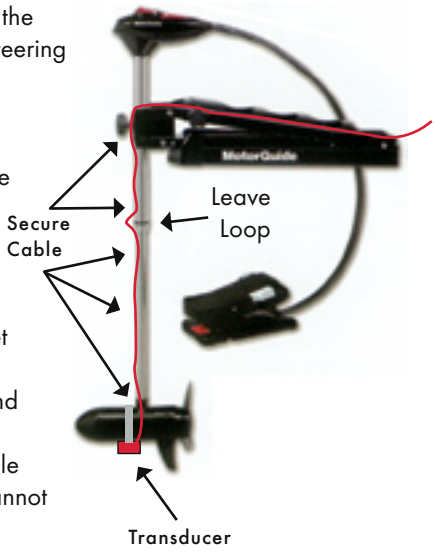
There are two main styles of trolling motors: manual steer and electric steer. The proper mounting method depends on the style of trolling motor.

Mounting to Electric Steer Motors



1. Position the transducer on the bottom side of the motor housing as close to the center of the steering rotation as possible.
2. Attach the transducer to the motor using the supplied cable tie.
3. Secure the cable to the lower-most part of the vertical motor shaft.
4. Run the cable through the carry handle on the motor's steering drive motor. (If your motor does not have this, you'll need to come up with an "eye" to keep the cable in place as you stow and deploy the motor)
5. Secure the cable near the motor's head at the top of the vertical shaft.
6. Route the cable down through the "coil cord" and out to your flasher's mounting location.
7. Stow and deploy the motor to insure the cable can move freely with the motor and that it cannot get pinched in any of the motor workings.

Mounting to Manual Steer Motors



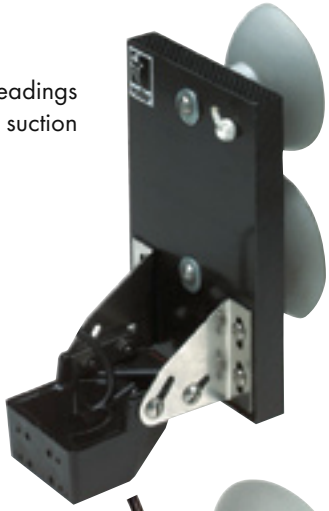
1. Position the transducer on the bottom side of the motor housing as close to the center of the steering rotation as possible.
2. Attach the transducer to the motor using the supplied cable tie.
3. Secure the cable to the lower-most part of the vertical motor shaft.
4. Route the cable up the shaft, securing it every 3 or 4 inches using cable ties or electrical tape. Be sure to leave a loop near the section where the two vertical shafts meet to allow for motor rotation.
5. Route along the motor's mounting bracket and out to your flasher's mounting location.
6. Stow and deploy the motor to insure the cable can move freely with the motor and that it cannot get pinched in any of the motor workings.

Portable Options

A suction cup bracket is an option if you want to quickly install and remove the transducer from the boat.

BK0044

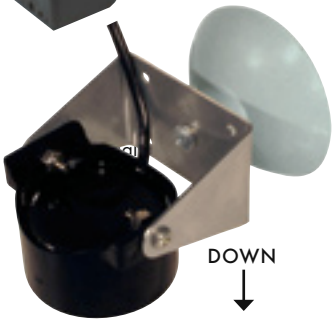
Fits all High-Speed style transducers and allows for readings at speeds above the planing speed of the boat. Dual suction cups offer a secure hold.



IMPORTANT: Suction cups can come loose. Each bracket includes a safety rope. Be sure to take the time to tie the rope to the bracket and then to the boat leaving as little amount of slack as you can. If the cup(s) come lose, this will keep your transducer and cable out of the propeller.

BK0027

Fits all 2" Puck style transducers. (7°, 9°, 12°, and 9°/19°). Offers a secure hold and the ability to point the transducer in a specific direction.



BK0023

Fits the 1" (19°) Puck Transducer. This bracket makes it the smallest portable transducer option available.

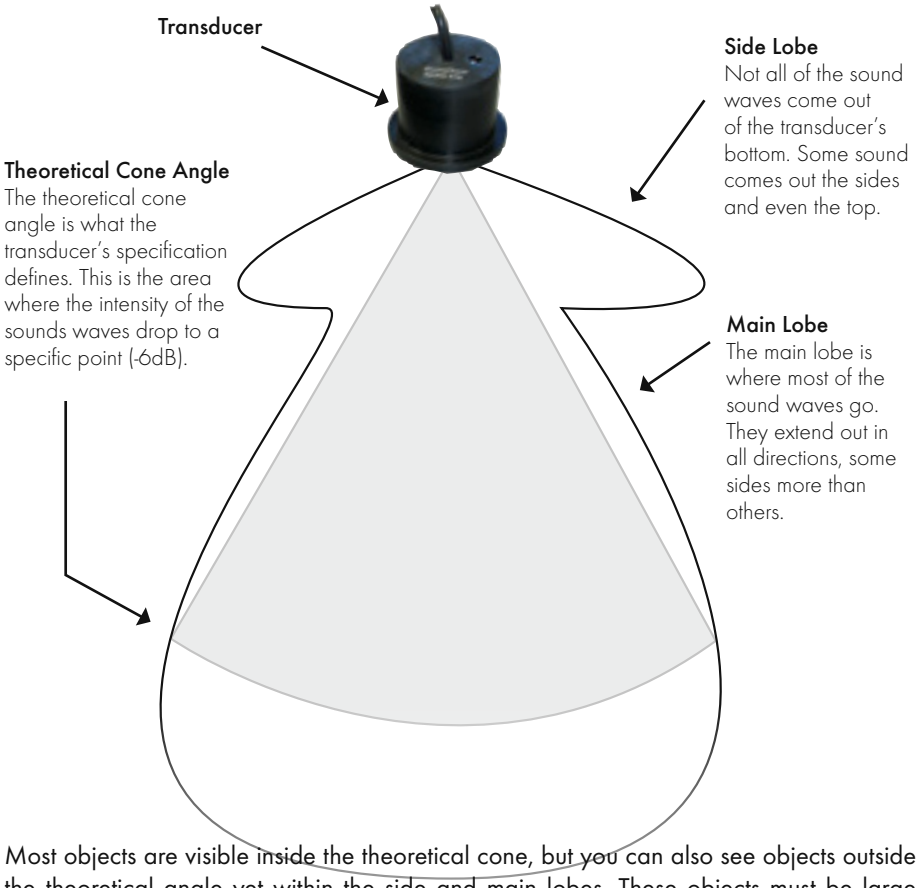
Note - suction cup brackets do not include the transducer.

Did You Know?: Vexilar does not offer a suction cup bracket to fit the ice fishing style transducers. This is because the Ice-Ducer cable is made to stay soft in very cold temperatures. Therefore, it is very easy to damage in warm temperatures, thus open water use is not recommended.

ABOUT TRANSDUCERS

Cone of Sound

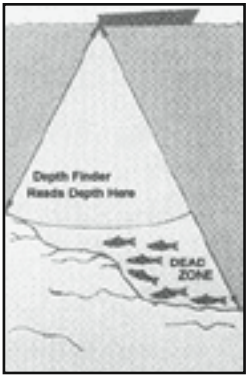
The cone of sound is the area the sound waves cover as they are emitted from the transducer. Generally, this area is thought of as three-dimensional cone, such as an upside-down ice cream cone. In actuality, the cone of sound is not so precisely defined. It is an irregular shape with edges that taper rather than end abruptly. Additionally, the cone of sound will vary slightly from transducer to transducer.


Transducer
Side Lobe
Not all of the sound waves come out of the transducer's bottom. Some sound comes out the sides and even the top.
Theoretical Cone Angle
The theoretical cone angle is what the transducer's specification defines. This is the area where the intensity of the sounds waves drop to a specific point (-6dB).
Main Lobe
The main lobe is where most of the sound waves go. They extend out in all directions, some sides more than others.

Most objects are visible inside the theoretical cone, but you can also see objects outside the theoretical angle yet within the side and main lobes. These objects must be large enough to sufficiently reflect the sonar signal. Some of these objects can be things like the face of a sharp dropping bottom, a large rock, or even a good size fish or tight group of smaller fish.

Dead Zone

Beam angle has a large effect on the performance of your flasher. There is more to it than simply area of coverage. The correct beam angle to use depends entirely on your application. If you are fishing for suspended fish then you would be pleased with the performance of the 19° cone. However, if you were going after fish that are holding right on the bottom along a steep drop-off, you would have better results with the 9°. This is because of something called dead zone. Dead zone is an area within the transducer's cone of sound that is blind to you. The wider the beam angle the greater the possible dead zone. The sonar will mark bottom as the nearest distance it sees. If you are fishing over a slope, it may see the high side of the slope, at the edge of the cone, and mark that as bottom. The fish that are holding on the bottom on the low side of the slope will be invisible to you because they are actually within the bottom signal on your depth finder. A narrower beam angle will reduce this effect.



Cone angle vs Diameter of Coverage					
Depth	8°	9°	12°	19°	20°
10′	1.4′	1.6′	2.2′	3.4′	3.5
20′	2.8′	3.2′	4.3′	6.7′	6.9
30′	4.2′	4.7′	6.3′	10.0′	10.6
40′	5.6′	6.3′	8.4′	13.4′	14.1
50′	7′	7.9′	10.6′	16.7′	17.6
60′	8.4′	9.4′	12.6′	20.8′	21.2
70′	9.4′	11.0′	14.7′	23.4′	24.7
80′	11.2′	12.6′	16.8′	26.8′	28.2
90′	12.6′	14.2′	20.0′	30.1′	31.7
100′	14′	15.7′	21.0′	33.5′	35.3
120′	16.8′	18.9′	25.2′	40.2′	42.3
150′	21′	23.6′	31.5	50.2′	52.9

Output Power

Your depth finder puts out a constant amount of power, or sound energy. It does not matter where you have the gain level set. Gain simply controls how much you amplify the signal that is returned from below. Therefore, a narrow beam transducer will appear to be much more powerful than a wide beam transducer. This is because you are putting that same amount of power into a smaller area. This can be an advantage if you are fishing in deep water or a detriment if you are fishing in shallow water. A narrow beam transducer can be overpowering in shallow water. The use of the LP (Low Power) mode on your flasher, or the optional S-Cable (page 42), will solve this problem.

Remember to NOT use LP mode or the S-Cable in depths beyond 20 feet. You will find that you need to turn your gain control up much higher than normal. This will give a noisy display and make interference from other units much more likely.

Vexilar Tri-Beam Ice-Ducer System, WILL Put More Fish on the Ice

Vexilar invented and patented the first Ice-Ducer in 1997. A self-leveling transducer to make it easy for the ice angler to get their transducer to hang straight down the hole. One of the newest advancements in sonar technology to come around in a long time is the all new Vexilar Tri-Beam Ice-Ducer transducer system. The innovation will totally change the way ice anglers look at matching their fishing situation with the right transducer to maximize the performance of their Vexilar.

Vexilar currently offers four Ice-Ducer options, the 19 degree Ice-Ducer, the 12 degree IceDucer, the 9 degree Ice-Ducer and now the new Tri-Beam Ice-Ducer. The Tri-Beam offers a combination of an 8, 12 and 20 degree Ice-Ducer in one housing. Different cone angles are created by different size crystals inside the Ice-Ducer housing. A simple switch box allows you to access the degree of performance you wish to have and they will fit ANY Vexilar FL flasher, no matter how old!

The New Tri-Beam will allow the advantages of all three of these beam angles in a single Ice-Ducer. The great thing is that the new Tri-Beam will fit any type or age of Vexilar Flasher and with a simple switch box, you can see for yourself the differences in display performance on your flasher.

Vexilar Tri-Beam Ice-Ducer #TB0033

Understanding the Tri-Beam Advantages

The first thing you will note about your Tri-Beam Ice-Ducer as you switch from one crystal to another is that you will be required to adjust your gain setting. Fishing in 30 feet of water with the Tri-Beam set at the 20 degree option will require you set your gain at about a 2 setting, and this would be "normal". As you go to the 12 degree or the 8 degree you will find the signals get too strong and too blurry to see individual targets. You will need to reduce your gain downward as you go with a narrower beam setting. This is because the Ice-Ducer is outputting the same amount of energy but to a smaller area of coverage.

The need for using all three settings on the Tri-Beam has really opened the world to a new set of possibilities when fishing specific applications. One example would be fishing shallow waters of under 10 feet. When most anglers are fishing shallow, their first reaction would be to use only the wide angle 20 degree option on their Tri-Beam. While it is true that you will be able to see more of the area below you, in many shallow water settings, the weeds grow very thick and tall. A single stalk of weed could make seeing your lure very difficult. By switching to the low power mode option on your sonar or using an "S" cable or suppression cable, you will be able to dial down the power of the narrower beams and the system will ignore the longer stalks of weeds on the outer edges of the 20 degree cone and allow you to see a 30 to 50% clearer signal with less clutter and confusion, thus making it easier to see and catch the fish below.

The Vexilar Tri-Beam Ice-Ducer will be a great benefit to the ever growing number of traveling winter anglers who are no longer content to fish one lake or species. With the Tri-Beam, your Vexilar can be used with greater effectiveness and far less interference from other sonar than ever before, even when compared to single crystal Ice-Ducers.

At one particular fishing event where anglers were fishing deep water perch in 40 feet of water the advantages of the Tri-Beam once again becomes obvious. If you try to fish around a dozen anglers, all fishing in deep water for perch with a 19 degree Ice-Ducer, the odds of using the IR button on your Vexilar to remove this level of interference is impossible. With the use of the Tri-Beam you can literally dial out the interference by 80% just by shifting to a smaller transducer cone option.

There is little doubt in the years ahead, winter anglers will discover more of the advantages of the Vexilar Tri-Beam IceDucer to help get even more from their Vexilar sonar systems.

To Order, go to Vexilar.com/tribeam
or call 952-884-5291 during normal business hours.

PARTS AND ACCESSORIES

Optional Transducers and Conversion Kits

Transom Mount High Speed Styles (25' Cable)

- TB0044 - 19° Cone Angle
- TB0084 - 12° Cone Angle
- TB0030 - 9° Cone Angle
- TB0045 - Dual 9° or 19° Cone Angle*
  *Includes detachable switch assembly

Transom style transducers include the mounting bracket and have 25 feet of cable length.

Conversion kits include the transducer, flasher mounting bracket, power cable, and installation hardware.

Transom Style Conversion Kits

- TK-144 - 19° Transducer Conversion Kit for the FL-8se and FL-18
- TK-244 - 19° Transducer Conversion Kit for the FL-12, FL-20 & FL-22HD
- TK-184 - 12° Transducer Conversion Kit for the FL-8se and FL-18
- TK-284 - 12° Transducer Conversion Kit for the FL-12, FL-20 & FL-22HD
- TK-130 - 9° Transducer Conversion Kit for the FL-8se and FL-18
- TK-230 - 9° Transducer Conversion Kit for the FL-12, FL-20 & FL-22HD
- TK-145 - Dual Cone Transducer Conversion Kit for the FL-8se and FL-18
- TK-245 - Dual Cone Transducer with Conversion Kit for the FL-12, FL-20 & FL-22HD
- BK0044 - Suction Cup Mount for all of the above High Speed Transducers. Offers dual suction cups for extra holding power.

Puck Styles (25' Cable)

- TB0023 - 19° Cone Angle
- TB0087 - 12° Cone Angle
- TB0027 - 9° Cone Angle
- TB0037 - 7° Cone Angle
- TB0032 - Dual 9° or 19° Cone Angle*
  *Includes detachable switch assembly

Puck style transducers include a trolling motor mounting tie and A.C.E. adhesive for in-hull mounting. All have 25 feet of cable length.

Conversion kits include the transducer, flasher mounting bracket, power cable, and installation hardware.

Puck Style Conversion Kits

- TK-123 - 19° Transducer with Conversion Kit for the FL-8se and FL-18
- TK-223 - 19° Transducer with Conversion Kit for the FL-12, FL-20 & FL-22HD
- TK-187 - 12° Complete Conversion Kit for the FL-8se and FL-18
- TK-287 - 12° Transducer with Conversion Kit for the FL-12, FL-20 & FL-22HD
- TK-127 - 9° Complete Conversion Kit for the FL-8se and FL-18
- TK-227 - 9° Transducer with Conversion Kit for the FL-12, FL-20 & FL-22HD
- TK-132 - Dual Cone Transducer Conversion Kit for the FL-8se and FL-18
- TK-232 - Dual Cone Transducer with Conversion Kit for the FL-12, FL-20 & FL-22HD
- BK0023 - Suction Cup Mount for TB0023 19° Puck Transducer
- BK0027 - Suction Cup Mount for the 12°, 9°, 7°, and Dual Puck Transducers

AlumaDucer™

- TB0023A - 19° Cone Angle
- TK-123A - 19° Transducer with Conversion Kit for FL-8se and FL-18
- TK-223A - 19° Transducer with Conversion Kit for FL-12, FL-20 & FL-22HD

Ice-Ducers

- TB0050 - 19° Cone Angle
- TB0080 - 12° Cone Angle
- TB0051 - 9° Cone Angle
- TB0033 - Tri 8°/12°/20° Cone Angles

AlumDucers come with A.C.E. adhesive and have 25 feet of cable length.

Ice-Ducers come with float and stopper. Cable length is 7 feet.

Switches and Extensions

- CB0001 - 10 foot transducer cable extension
- CB0002 - 20 foot transducer cable extension
- SB-100 - Switch box for switching between two transducers on one flasher
- SB-200 - Switch box for switching two flashers on one transducer.

Transducer Exchange Policy

If you find that you have bought the wrong transducer for your intended mounting application, you can exchange your new transducer with Vexilar. You will only need to pay the retail cost difference of the transducer style, plus shipping. Please call for more information.

Replacement Parts

- PC0001 - Power cord for the FL-8se and FL-18
- PC0004 - Power cord for the FL-12, FL-20 & FL-22HD
- GB0001 - Unit gimbal mounting bracket for FL Series Gimbal Mount Flashers
- GBK001 - Gimbal Mounting bracket knobs (2 pieces)
- FT-100 - Float with stopper for all Ice-Ducers
- ST-100 - Stopper for all Ice-Ducers (2 pieces)
- RB-100 - Eye-bolt support for all Ice-Ducers
- RH-100 - Rod Holder assembly for Ultra Packs and Pro Pack IIs
- CH-100 - Beverage Holder for Rod Holder.
- TKB001 - Vexilar 4 by 6 inch tackle box
- V-110 - 7 Amp Battery with Charger
- V-120 - 9 Amp Battery with 1 Amp Charger
- V-410 - 12 Volt / 1 Amp Automatic Charger
- V-100 - Replacement 9 Amp Battery.
- V-50 - Replacement 7 Amp Battery
- PDCA1 - 12 Volt Accessory Plug Power Cord (FL-8/FL-18)
- PDCA4 - 12 Volt Accessory Plug Power Cord (FL-12, FL-20 & FL-22HD)

To Order, go to Vexilar.com or call 952-884-5291 during normal business hours.

ACCESSORIES

Ultra Pack Carrying Case Only
This portable case has all the features. Upgrade your older system or build a custom new system.

UC-100

Pro Pack II Carrying Case Only
The latest generation of our most popular portable carrying case.

PC-100

Genz "Blue Box" Carrying Case Only
A solid carrying case for your Vexilar flasher or other electronics.

BC-100

Soft Pack for the Genz Pack
Encloses and protects the system. Offers Velcro sealable access locations and side pocket storage.

SP0005

Soft Pack for the Pro & Ultra Carrying Cases
Encloses and protects the system. Offers a clear zippered window and access locations.

SP0007

FlexLight
Provides a bright white light with very low current draw. It's adjustable so you can put the light where you need it.

L-200

S-Cable
The suppression cable reduces your flasher's output power. This allows clearer readings in shallow or cluttered waters.

S-140

Sun Hood
Shields the display on FL-8s, FL-8SLTs, FL-8SEs, and FL-18s. Easy assembly and installation.

S-240

Mag Shield
Both magnifies and protects the FL-8se or FL-18 displays. Not compatible with the FL-12 or FL-20

MS0001

Flasher Cover
Neoprene cover will protect the flasher face during transport and storage. Fits models FL-12, FL-20 & FL-22HD.

COV001

Tri-Beam Ice-Ducer
Gives you the option to select from a wide 20° beam, a mid 12°, or a narrow 8° beam angle. Switch included.

TB0033

Digital LCD Battery Status Indicator
Shows the current level of charge as a percentage with charge or discharge mode indication.

D-130

Pro Mount
Offers a swivel action and quick removal for your flasher or other electronics. It's durable and economical.

SMC001

Deptherm
Gives depth and temperature. Just attach it to your line and drop it down.

104

A.C.E. Adhesive
This acoustically conductive epoxy system is designed for maximum performance with minimal in-hull transducer installation effort

ACE001

Tackle Tote
A handy soft sided tackle box that holds three of our 4 by 6 inch Vexilar tackle boxes. Use it for all seasons.

TT-100

Beverage Holder
Fits into the rod holder on the Ultra Pack and Pro Pack II and allows you to keep your favorite beverage close at hand.

CH-100

Vexilar Clothing
From caps to shirts and sweats to jackets, Vexilar offers a wide range of styles and colors with the Vexilar logo. Visit the Vexilar web site or your local Vexilar Pro Shop to find quality affordable clothing you'll enjoy wearing day after day.

Visit vexilar.com for more great gear and wear!

Maintenance

Clean the flasher body and screen with a soft cloth and a mild detergent. Do not submerge in water or other liquids.

Do not expose the body or display to chemicals, such as fish attractant or insect repellent. Damage to the surfaces can occur.

Do not submerge the body in water or subject it to heavy wave splashing. The flasher housing is weather-proof for most conditions, but is not waterproof. Water damage is not covered under the warranty.

TROUBLE SHOOTING

Symptom	Possible Cause
Unit is turned on, but no display and motor is not running.	Check for bad connections, proper hook up polarity, and make sure you have a good, fully charged, battery.
Unit is turned on and the motor is running, but there is no display.	Battery voltage too low. The unit will show no display if the voltage is below 8 volts. Check voltage while unit is running.
Unit runs well for a short time, then lights flash randomly or unit quits.	Bad battery or connection. Voltage may be good when checked, but will fall as unit runs.
Unit runs and shows display light, but does not read depth.	Transducer is not plugged in or not in contact with the water.
Unit works, but needs high gain to see bottom or targets.	Transducer is not aimed correctly or needs to be cleaned. 19° transducers will have trouble seeing small targets deep.
Unit works, but has too many lines on the display. Can't tell what is what.	Improper transducer adjustment. Also, gain may be set too high or, if gain is set to minimum, switch to the LP Mode.
Unit works well when sitting still or at when slow trolling, but loses reading at higher speeds.	Improper transducer type, installation, or adjustment causing a loss of clear water flow across the transducer when the boat reaches a certain speed.
Unit shows noise when engine or electric motor is turned on.	Defective engine or electric motor. Also can be improper grounding or missing ground in electrical system.
I.R. does not work. Can't eliminate interference from other depth finder.	Gain may be set too high or the transducer is weak. Also, check for ice or debris buildup under the gain control.

Electrical Interference

There may be situations where you experience interference from other electrical devices, not just another nearby depth sounder. This interference will show on your display as random signals which can appear anywhere. They will interfere with your ability to see the normal display signals. The most common sources of interference are electric trolling motors and engine ignitions systems. The Interference Rejection feature will not have much effect on these types of interference, as this feature is designed to only deal with signals from another sonar device. Here are some things to be aware of when it comes to electrical interference.

Sources

Interference can be introduced into your sonar system through the power supply, transducer line, or both. To identify the source, unplug the transducer and run the trolling motor or the engine. If the interference disappears, you know the noise is coming in through the transducer line. If not, it's coming through the power line, or both.

Wiring

Power line interference can generally be solved by improvements in the wiring positions, connections, and grounding. You want to be sure the sonar wiring is as far away as possible from the trolling motor wiring, and the wiring is neat. Make cable runs as short as possible and neatly coil extra wire and tie it off so it stays put in rough water or while pulling the boat. All electrical connections should be in very good condition. Push-on terminals should be tight. Wire crimp connections should not come free when pulled firmly. Conductors should be shiny, not dull or corroded.

Grounding

The boat's electrical system should have a common "Earth" ground to the water. Most boats electrical systems are grounded through the outboard to the water. Many times a electric trolling motor interference problem can be solved by a "ground" wire from the negative trolling motor power source to the negative of the starting battery.

Equipment

Electric trolling motors and gas engines can have technical problems that can cause interference. If common wiring improvements do not solve the problem, be sure to check with the manufacturer to see if there are any recommendations or updates available regarding interference with depth sounders.

For more information regarding interference issues, check the Support section of the Vexilar web site or contact our service department.

SPECIFICATIONS

Operating Voltage:	10.5 - 15 Volts (12 Volts Nominal)
Current Draw:	200mA
Power Output:	400 Watts (Peak to Peak) Maximum
Frequency:	200 kHz
Display Resolution:	525 Lines of Resolution
Target ID (FL-8se & FL-12):	1" Minimum
Target ID (FL-18 & FL-20):	1/2" Minimum
Target ID (FL-22HD):	1/8" Minimum
Display Colors:	3 - Red, Orange, and Green
Interference Rejection	10 Steps
Weight:	1.1 Lbs.
Dimensions (FL-8se & FL-18):	4.4"H x 6"W x 3.5"D
Dimensions (FL-12, FL-20 & FL-22HD):	4.8"H x 6"W x 2.4"D

Depth Scales

FL-8se:	0-20', 0-30', 0-40', 0-60', 0-80', and 0-120'*
FL-12:	0-20' LP, 0-20', 0-40', 0-60', 0-80', and 0 - 200
FL-18:	0-20', 0-40', 0-60', 0-80', and 0-200'**
FL-20:	0-20' LP, 0-20', 0-40', 0-60', 0-80', and 0-200
FL-22HD	0-10', 0-20', 0-30', 0-40', 0-50', and 0-60'

* FL-8se Custom deep model available. Changes deepest range from 120' to: 240'. Contact Vexilar customer service for more information.

** Custom deep model available. Changes ranges to: 0-30', 0-40', 0-60', 0-90' and 0-300'. Contact Vexilar customer service for more information.

SERVICE AND SUPPORT

If you find that you need help please contact us. Have ready the model number and, if possible, the serial number of your product. Please be sure to read this manual thoroughly first.

Address

Vexilar, Inc.
6667 West Old Shakopee Road, Suite 101
Minneapolis, MN, 55438-2622

Telephone

(952) 884-5291

Fax

(952) 884-5292

Email

service@vexilar.com

Web Site

www.vexilar.com

Business Hours

8 AM to 4:30 PM M - F Central Time

A Different Kind of Outdoor Television

Ice Fishing Today is the first TV show to be extensively linked directly to the World Wide Web, and that is just the tip of the iceberg. Many shows now have web sites in conjunction with their show, but none that integrate the show into the web so a viewer is free to learn more and have easy access to additional information on demand. In producing any 30 minute program, literally hours of video tape are not shown simply because of time restrictions.

Now with the access to streaming video clips, show host Tom Zenanko invites you to watch the best ice fishermen in the country share their secrets, unedited and in the extended play version, the way it was filmed. Fans of ice fishing will be able to go to icefishingtoday.com and watch any of the programs along with bonus segments at any time. The program will be aired on both broadcast and cable networks in targeted markets all across the ice belt starting each November.

If you're an avid ice fisherman, you'll want to check out IceFishingToday.com

Vexilar's Fish Scout Underwater Camera

The Fish Scout 1000 is a complete underwater viewing system that consists of a color camera, color LCD 7" monitor, rigid carrying case with an enclosed 12 volt 9 amp hour battery, D-130 battery status indicator, 1 Amp Digital charger and soft pack carrying case. The system comes fully assembled and ready to use directly out of the box. Comes standard with a two year factory warranty. This system is energy efficient and can run for over 9 hours on a single battery charge.

Display
- 7" 16:9 widescreen LCD color monitor
- Operating range of -22° F to 150° F
- Monitor resolution: 480X3 (RGB)X234
- a-SI TFT active matrix display
- Video Out option

Camera
- Sony Super HAD CCD color/black and white camera
- Auto Gain control
- Lux: Color .51 – B&W - .05
- 90 degree viewing angle
- 420 lines of resolution
- 80' slim high-strength cable

Visit Vexilar.com for More Info!